UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

		Application No.	Applicant(s)
Office Action Summary		10/581,334	DONG, YAOZU
		Examiner	Art Unit
		GREGORY A. KESSLER	2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 August 2008</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-27</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-27</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>01 August 2008</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>09/05/2006, 09/12/2006</u>.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-27 are presented for examination.

Specification

2.   The use of the trademarks INTEL and ITANIUM have been noted in this

application. They should be capitalized wherever they appear and be accompanied by

the generic terminology.

Although the use of trademarks is permissible in patent applications, the

proprietary nature of the marks should be respected and every effort made to prevent

their use in any manner which might adversely affect their validity as trademarks.

3.   The disclosure is objected to because it contains an embedded hyperlink and/or

other form of browser-executable code. Applicant is required to delete the embedded

hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Objections

4.   Claim 10 is objected to because of the following informalities: in line 2, "find"

should be "finding". Appropriate correction is required.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
conditions and requirements of this title.

6.   Claims 20-27 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

7.   As per claim 20, the claim is drawn to a "machine readable medium". The

specification exemplifies the readable medium as including transmission or

communication medium such as "optical carriers" (Page 19, Line 29). Thus, the claim

as a whole covers a transitory signal, which does not fall into any of the four statutory

categories of invention (process, machine, manufacture, or composition of matter).

8.   As per claims 21-27, the do not cure the deficiencies of the claim on which they

depend. Therefore, they are rejected for the same reason.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9.   Claims 1, 2, 6, 10-12, 16, 20, 21, 25, and 27 are rejected under 35 U.S.C. 102(e)

as being anticipated by Dinechin et al **(U.S. Pat. Pub. No. 2006/0026385 A1,**

hereinafter Dinechin).

10.   <u>As per claim 1</u>, Dinechin teaches the limitations as claimed, including a method

for supporting virtual machines in a data processing system, the method comprising:

executing an emulation patch for a guest virtual machine (VM) of a processing

system, the emulation patch including data to facilitate identification of a routine for

emulating a guest instruction (Paragraph [0028], Lines 7-12; Paragraph [0052], Lines 1-

17);

in response to execution of the emulation patch, transferring control from the

guest VM to a virtual machine monitor (VMM) without saving a trap frame (Paragraph

[0052], Lines 12-17; Figure 15 shows a branch instruction transferring control from the

virtual machine to the virtual machine monitor); and

using the data from the emulation patch to find an emulation routine for the guest

instruction (Paragraph [0052], Lines 12-17; Paragraph [0028], Lines 7-12; Figure 15,

Element 1504 shows using the data from the patch to find an emulation routine,

Element 1502).

11.   <u>As per claim 2</u>, Dinechin teaches that the operation of executing an emulation

patch comprises executing an instruction that includes an immediate value to be used

for finding the emulation routine (Figure 15, Element 1504).

12.   As per claim 6, Dinechin teaches automatically determining whether the guest

instruction is to be patched for emulation, based at least in part on a list of instructions

to be patched (Paragraph [0055], Lines 18-22; Paragraph [0056], Lines 1-3) and

inserting the emulation patch in response to a determination that the guest instruction is

to be patched (Paragraph [0056], Lines 6-10).

13.   As per claim 10, Dinechin teaches in response to execution of the emulation

patch, find and executing the emulation routine for the guest instruction without

decoding the guest instruction (Paragraph [0052], Lines 12-17 teach finding and

executing the emulation routine with no mention of decoding the guest instruction;

Figure 15).

14.   As per claims 11, 12, and 16, they are processing system claims of method

claims 1, 2, and 6, respectively. Therefore, they are rejected for the same reasons.

15.   As per claims 20, 21, 25, and 27, they are apparatus claims of method claims 1,

2, 6, and 10, respectively. Therefore, they are rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16.   Claims 3, 4, 13, 14, 22, and 23 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dinechin in view of Gates (**U.S. Pat. No. 6449709 B1**).

17.   <u>As per claim 3</u>, Dinechin teaches that the operation of executing an emulation

patch comprises executing a flow control instruction, wherein the flow control instruction

includes an address to be used for finding the emulation routine, the flow control

instruction selected from a group consisting of a branch instruction (Figure 15, Element

1504; Paragraph [0028], Lines 7-12).

Dinechin does not teach a call instruction or a jump instruction.

However, Gates teaches a call instruction and a jump instruction (Col. 10, Lines

21-34).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the teachings of Gates with those of Dinechin in order to allow for

more flexibility in the selection of the flow control instruction to provide for situations

where a different known instruction, such as a call or a jump instruction, would be more

appropriate.

18.   As per claim 4, Dinechin teaches that the operation of executing an emulation

patch comprises executing an instruction selected from the group consisting of a branch

instruction (Figure 15, Element 1504; Paragraph [0028], Lines 7-12).

Dinechin does not teach a break instruction, a call instruction, or a jump

instruction.

However, Gates teaches a break instruction, a call instruction, and a jump

instruction (Col. 10, Lines 21-34).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the teachings of Gates with those of Dinechin in order to allow for

more flexibility in the selection of the flow control instruction to provide for situations

where a different known instruction, such as a break, call, or jump instruction, would be

more appropriate.

19.   As per claims 13 and 14, they are processing system claims of method claims 3

and 4, respectively. Therefore, they are rejected for the same reasons.

20.   As per claims 22 and 23, they are apparatus claims of method claims 3 and 4,

respectively. Therefore, they are rejected for the same reasons.

21.   Claims 5, 7-9, 15, 17-19, 24 and 26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dinechin in view of Dinechin et al **(U.S. Pat. Pub. No. 2006/0026387**

A1, hereinafter Dinechin2).

22.   <u>As per claim 5</u>, Dinechin does not expressly teach determining an index, based

at least in part on data produced by the emulation patch and using the index to find the

emulation routine to be executed.

        However, Dinechin2 teaches determining an index, based at least in part on data

produced by the emulation patch and using the index to find the emulation routine to be

executed (Paragraph [0055], Lines 19-30).

        It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the teachings of Dinechin2 with those of Dinechin in order to take

advantage of a variety of known methods for transferring control from the virtual

machine to the virtual machine monitor using the emulation patch.

23.   <u>As per claim 7</u>, Dinechin teaches automatically determining whether the guest

instruction is to be patched for emulation, based at least in part on a list of instructions

to be patched (Paragraph [0055], Lines 18-22; Paragraph [0056], Lines 1-3).

Dinechin does not teach retrieving a code template that corresponds to the guest instruction to be patched.

However, Dinechin2 teaches retrieving a code template that corresponds to the guest instruction to be patched (Paragraph [0069], Lines 17-24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Dinechin2 with those of Dinechin in order to take advantage of a variety of known methods for transferring control from the virtual machine to the virtual machine monitor using the emulation patch.

24.   As per claim 8, Dinechin teaches automatically determining whether the guest instruction is to be patched for emulation, based at least in part on a list of instructions to be patched (Paragraph [0055], Lines 18-22; Paragraph [0056], Lines 1-3).

Dinechin does not teach retrieving a code template that corresponds to the guest instruction to be patched and generating the emulation routine for emulating the guest instruction, based at least in part on the code template.

However, Dinechin2 teaches retrieving a code template that corresponds to the guest instruction to be patched and generating the emulation routine for emulating the

guest instruction, based at least in part on the code template (Paragraph [0069], Lines 17-24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Dinechin2 with those of Dinechin in order to take advantage of a variety of known methods for transferring control from the virtual machine to the virtual machine monitor using the emulation patch.

25.   As per claim 9, Dinechin teaches automatically determining whether the guest instruction is to be patched for emulation, based at least in part on a list of instructions to be patched (Paragraph [0055], Lines 18-22; Paragraph [0056], Lines 1-3), wherein the guest instruction resides in a slot of an instruction bundle (Paragraph [0049], Lines 1-6).

Dinechin does not teach retrieving a code template that corresponds to the guest instruction to be patched and generating the emulation routine for emulating the guest instruction, based at least in part on the code template and on the slot containing the guest instruction.

However, Dinechin2 teaches retrieving a code template that corresponds to the guest instruction to be patched and generating the emulation routine for emulating the

guest instruction, based at least in part on the code template and on the slot containing

the guest instruction (Paragraph [0069], Lines 17-24).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the teachings of Dinechin2 with those of Dinechin in order to take

advantage of a variety of known methods for transferring control from the virtual

machine to the virtual machine monitor using the emulation patch.

26.   As per claims 15, 17, 18, and 19, they are processing system claims of method

claims 5, 7, 8, and 9, respectively. Therefore, they are rejected for the same reasons.

27.   As per claims 24 and 26, they are apparatus claims of method claim 5 and 8,

respectively. Therefore, they are rejected for the same reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to GREGORY A. KESSLER whose telephone number is

(571)270-7762. The examiner can normally be reached on Monday - Friday, 7:30 a.m. -

5:00 p.m., alternate Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571)272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chat C. Do/   /GREGORY A KESSLER/
Primary Examiner, Art Unit 2193   Examiner, Art Unit 2195